

Bottomonia results from the LHC Run 1 and 2 with CMS

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Bottomonia are important probes of the quark-gluon plasma since they are produced at early times and propagate through the medium, mapping its evolution. They are also considered to be cleaner probes than charmonia due to the lack of regeneration even at the LHC energies. In Run 1 at the LHC, CMS was able to explore multiple measurements of the $Y(nS)$ states in pp and PbPb collisions, down to $p_T = 0$. In PbPb and pp, the production cross sections for all three $Y(nS)$ states were measured at $\sqrt{s_{NN}} = 2.76$ TeV with the exception of the $Y(3S)$ state, which was not observed in PbPb collisions. The suppression of the $Y(1S)$ state was seen to depend on centrality, but not significantly on transverse momentum or rapidity. In Run 2, we have now measured the ground state to excited state ratios of Bottomonia in PbPb and pp collisions at $\sqrt{s_{NN}} = 5.02$ TeV. The $Y(2S)/Y(1S)$ ratios found to be below 1 over the full centrality range and a weak dependence is found as a function of dimuon kinematics. For the $Y(3S)$ state, an upper limit has been obtained as a function of centrality where a $Y(3S)/Y(1S)$ ratio compatible with 0 is observed over the full centrality range. In this talk, we will present the final CMS results on bottomonium production from Run 1, together with new Run 2 results from the high statistics PbPb data at $\sqrt{s_{NN}} = 5.02$ TeV collected in 2015.

Preferred Track

Quarkonia

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Primary author: FLORES, Chad Steven (University of California Davis (US))

Presenter: FLORES, Chad Steven (University of California Davis (US))

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